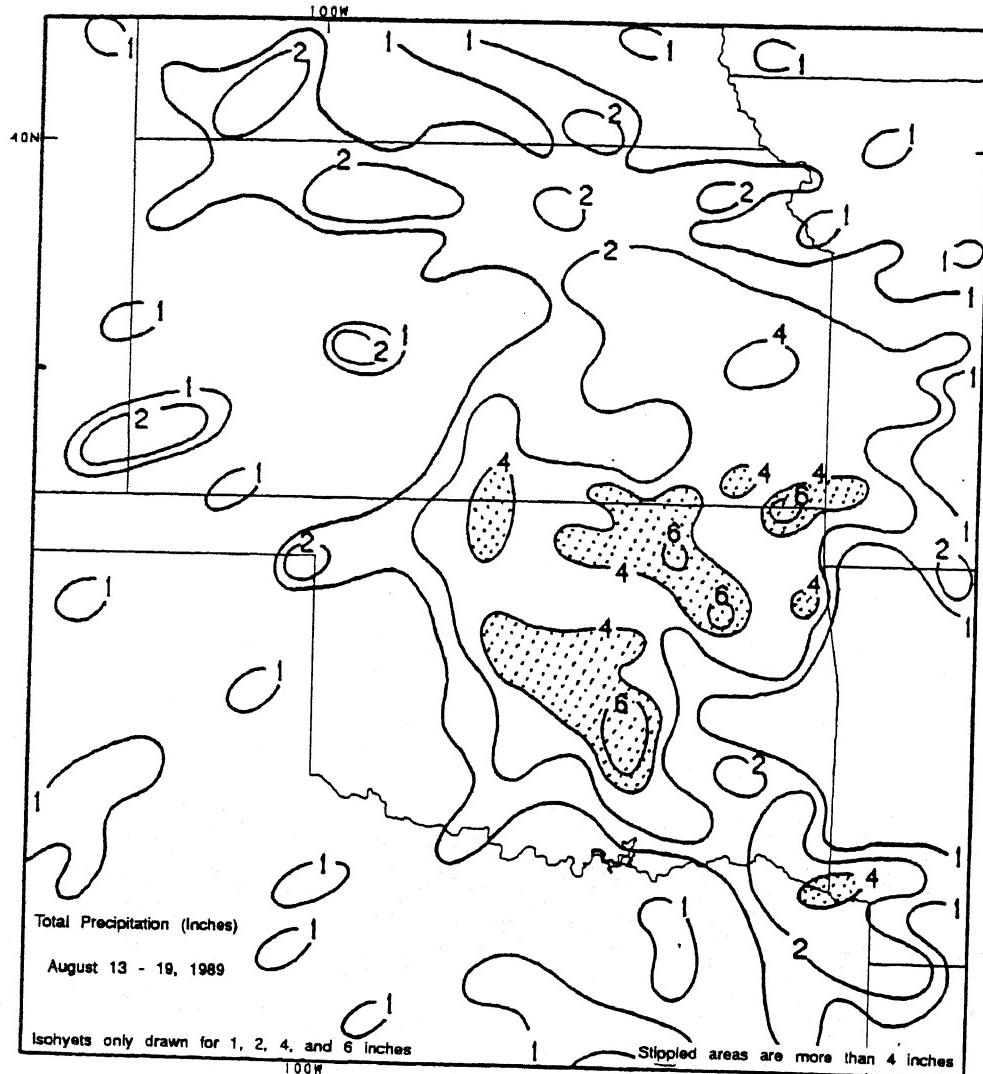


# WEEKLY CLIMATE BULLETIN

No. 89/33

Washington, DC

August 19, 1989



AFTER A BRIEF RESPITE FROM WET WEATHER, MUCH OF THE SOUTH-CENTRAL GREAT PLAINS WERE DRENCHED WITH UP TO 9.1 INCHES OF RAIN THAT CAUSED SOME FLOODING. LAST WEEK'S HEAVY RAINS CONTINUED A PATTERN OF ABOVE NORMAL PRECIPITATION IN THE REGION SINCE THE LATE SPRING.

UNITED STATES DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL WEATHER SERVICE - NATIONAL METEOROLOGICAL CENTER  
CLIMATE ANALYSIS CENTER

# WEEKLY CLIMATE BULLETIN

This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

- Highlights of major climatic events and anomalies.
- U.S. climatic conditions for the previous week.
- U.S. apparent temperatures (summer) or wind chill (winter).
- U.S. cooling degree days (summer) or heating degree days (winter).
- Global two-week temperature anomalies.
- Global four-week precipitation anomalies.
- Global monthly temperature and precipitation anomalies.
- Global three-month precipitation anomalies (once a month).
- Global twelve-month precipitation anomalies (every three months).
- Global three-month temperature anomalies for winter and summer seasons.
- Special climate summaries, explanations, etc. (as appropriate).

*Most analyses contained in this Bulletin are based on preliminary, uncheck data received at the Climate Analysis Center via the Global Telecommunications System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.*

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# GLOBAL CLIMATE HIGHLIGHTS

## MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF AUGUST 7, 1993

### 1. Northwestern United States:

#### **COOL CONDITIONS SHIFT EASTWARD.**

Temperatures averaged as much as 6°C below normal across Montana and the Dakotas, but near normal conditions prevailed farther west [6 weeks].

### 2. Central North America:

#### **SEVERE FLOODING PERSISTS DESPITE DRIER WEATHER.**

Less than 25 mm of rain fell on most of the region, although isolated showers dumped as much as 75 mm on parts of northeastern Nebraska and 100 mm on southern Kansas. In Canada, precipitation totals were below 25 mm for the week, and six-week moisture surpluses reached as high as 120 mm. Although river levels slowly dropped during the week, the region remains extremely vulnerable to flooding because soils are saturated, levees are weakened, and many rivers remain well above flood stage [25 weeks].

### 3. Southern United States:

#### **RAINS BRING RELIEF.**

Between 50 and 250 mm of rain drenched parts of the mid-Atlantic and Southeast; however, little or no precipitation was reported in central and southern Texas, southeastern Georgia, and peninsular Florida. Accumulated six-week moisture shortages approached 160 mm at some locations [6 weeks].

### 4. Central Mexico:

#### **EXCESSIVE RAINFALL ABATES.**

Isolated locations in west-central Mexico received up to 100 mm of rain, but most areas measured under 25 mm [Ended at 7 weeks].

### 5. Northeastern Argentina:

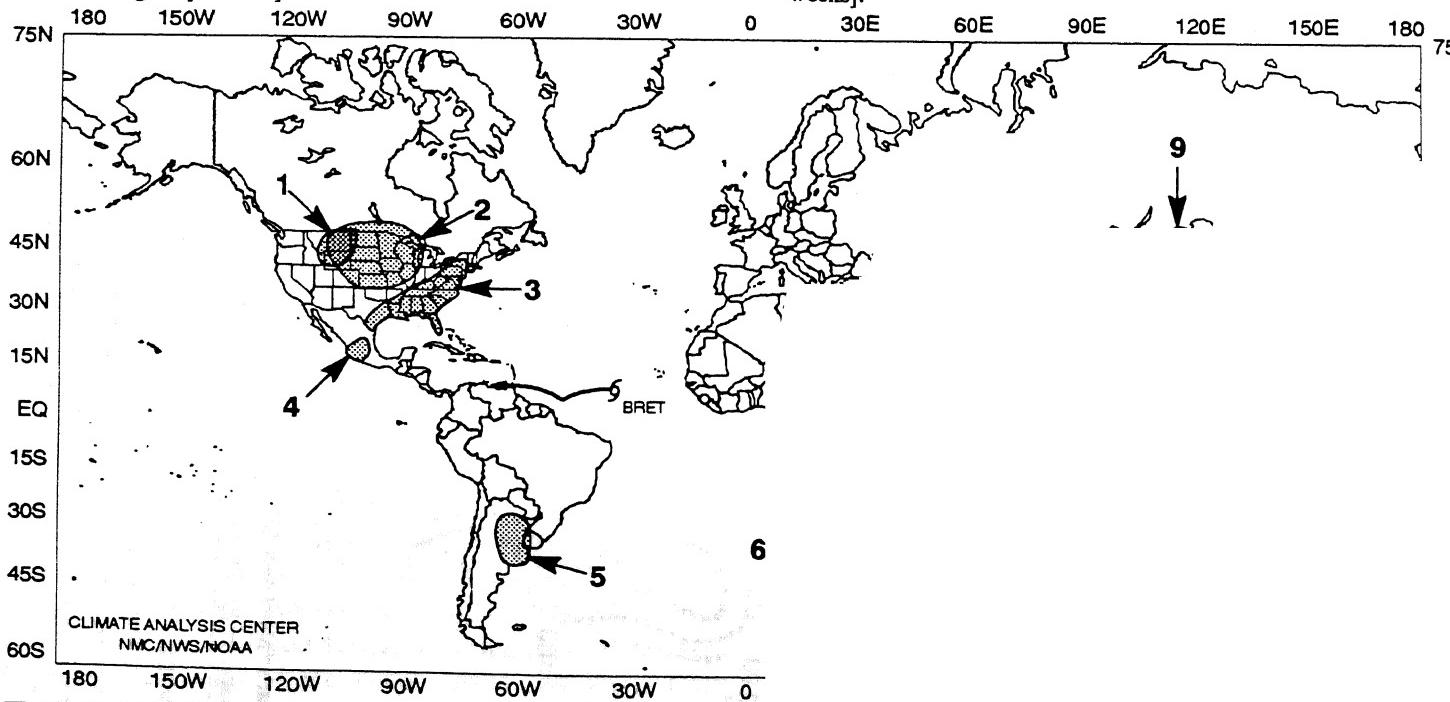
#### **ABNORMALLY DRY WEATHER CONTINUES.**

Little or no precipitation fell on the region as six-week moisture deficits reached 85 mm at some locations [6 weeks].

### 6. Southern Africa:

#### **NEAR-NORMAL TEMPERATURES PREVAIL.**

Temperatures averaged as much as 5°C above normal in parts of southeastern Botswana, but near-normal conditions spread across the remainder of the region [5 weeks].



#### **EXPLAN**

TEXT: Approximate duration of anomalies is in brackets. Precipitation: MAP: Approximate locations of major anomalies and episodic events: temperature anomalies, four week precipitation anomalies, long-

### 7. Nepal and Northern India:

#### **INUNDATING RAINS ENGENDER MORE FLOODING.**

Over one hundred millimeters of rain soaked much of the region, allowing moisture surpluses to remain high. According to press reports, the additional rain triggered renewed flooding in Bangladesh and Nepal, just those countries were beginning to recover from last month's river floods [8 weeks].

### 8. Southeastern China:

#### **MORE WET WEATHER.**

Up to 170 mm of rain inundated the region as unusually wet weather persisted. Six-week moisture surpluses climbed to 400 mm at some locations [16 weeks].

### 9. Eastern Mongolia and Northeastern China:

#### **ABUNDANT PRECIPITATION CONTINUES.**

Moderate to heavy rains (30 to 120 mm) soaked northeastern China, lesser amounts were measured in eastern Mongolia. Six-week moisture surpluses ranged from 170 mm in parts of Mongolia to 330 mm in Manchuria [16 weeks].

### 10. Japan and South Korea:

#### **TYphoon ROBIN APPROACHES REGION.**

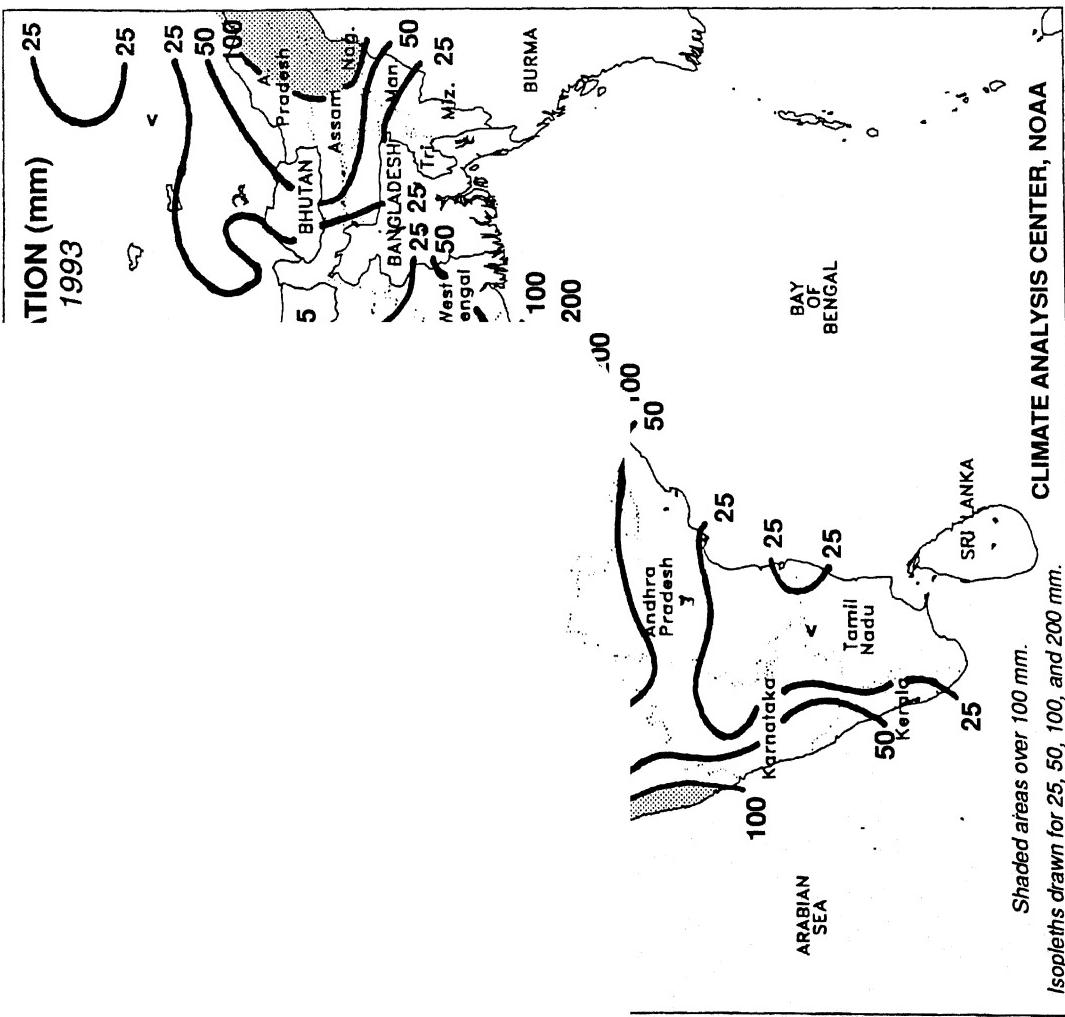
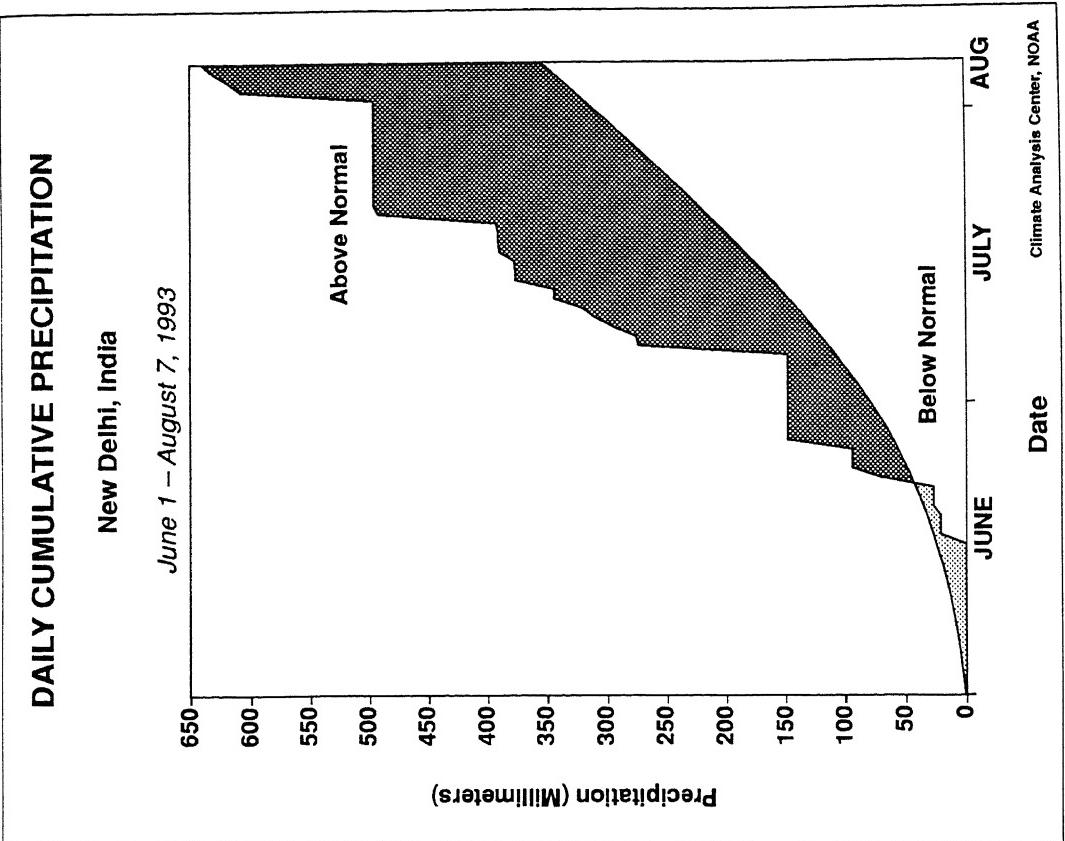
Packing 162 kph winds, the seventh typhoon of the season approaches South Korea and southern Japan, spreading scattered heavy rains across already-saturated sections of Kyushu Island. Torrential rains deluged the southern end of Kyushu earlier in the week. Since late June, some sections of southwestern Japan accumulated moisture surpluses in excess of 1 mm [8 weeks].

### 11. Northeastern Australia:

#### **WARM WEATHER ENDS.**

Below normal temperatures overspread much of Queensland and northern New South Wales, bringing an abrupt end to the warm spell [Ended at weeks].

## IMAGES HIGHLIGHTS FEATURE



NORTHERN INDIA NEPAL BANGLADESH AND NORTHEASTERN INDIA

**ANOTHER WEEK OF INUNDATING MONSOONAL RAINS AGGRAVATES FLOODING ACHROSS NORTHERN INDIA, NEPAL, BANGLADESH, AND NORTHEASTERN INDIA**

Between 100 and 300 mm of rain drenched the central tier of India, the northern half of Uttar Pradesh and adjacent areas, and eastern sections of Arunachal Pradesh, Assam, and Nagaland. In addition, although reliable rainfall reports are lacking across Nepal and Bangladesh, press reports indicate that similar totals probably fell on portions of those countries as well. Press reports also indicate that renewed flooding resulted from last week's heavy rains in Bangladesh, particularly along the Bakkhali River, which spilled over its banks. Also, sections of the northern district of Sirajgonj were reportedly underwater. The 1993 monsoon season has been considerably wetter than normal in many areas, especially northeastern, north-central, and northwestern India. New Delhi received nearly twice the normal rainfall during June 1 - August 7, 1993 while Ratnagiri, located in western Maharashtra, reported almost 2500 mm of rain, representing a surplus of over 600 mm. Meanwhile, Jaisalmir, located in the Thar Desert in west-central Rajasthan, measured a 68-day total of 282 mm, nearly 2 1/2 times normal.

# UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

## FOR THE WEEK OF AUGUST 1-7, 1993

Water levels dropped along most of the swollen rivers in the Midwest, plagued by nearly two months of intensive flooding. A previously stagnant weather pattern broke early in the week, allowing only widely scattered rainfall amounts of more than an inch in the Missouri and middle and upper Mississippi River Valleys. Levees and soils, however, remained saturated and more levees south of St. Louis, MO, gave way during the week. According to press reports, the flooding along the Mississippi and Missouri Rivers and their tributaries has contributed to the deaths of 48 people and caused over \$12 billion in damage, flooding over ten million acres across nine Midwestern states. Most of the rivers remained closed to barge traffic, and are not expected to fully reopen until September. In addition, most bridge crossings along the lower Missouri and middle Mississippi Rivers remain closed as well.

The changing weather pattern also brought severe weather and heavy rain from the central High Plains and Texas panhandle southeastward to the lower Mississippi Valley and eastward and northeastward to the southern and middle Atlantic coast. One to five inches of rain brought some relief from generally dry conditions across the southeastern Plains, the Southeast, and the mid-Atlantic. Amounts of up to nine inches drenched northern Mississippi, causing localized flooding, while an outbreak of tornadoes ravaged southeastern Virginia on Friday. The twisters killed four people, injured more than 200, caused an estimated \$20 million in damage, and left 31,000 customers without power in the Petersburg, VA and Newport News, VA areas.

Early in the week, showers and thunderstorms developed in the moist and unstable air along and ahead of a slow southeastward-moving cold front curving from the Great Lakes, through the middle Mississippi Valley, into the central Plains. Severe thunderstorms spawned heavy rain, large hail, and damaging wind in the central High Plains and the lower Ohio and northern lower Mississippi Valleys. Hot weather prevailed in the Far West, where nearly two dozen daily record highs were set and in the Deep South, where another half-dozen records were broken. By Tuesday, the front was draped along the northern Atlantic seaboard, across the central Appalachians, and into the lower Mississippi Valley and southern Plains as showers and thunderstorms continued to soak much of the area along and ahead of the system. Meanwhile, another cold front pushed southeastward behind the first front, bringing more showers and thunderstorms to the Great Lakes, the lower Ohio Valley, and central and northern sections of the southern Plains. Hot weather remained in the Far West, across the Deep South, and along the Atlantic seaboard, where several daily records continued to be broken. Temperatures climbed above the century mark across southern Oregon and reached

118°F at Parker, AZ on Monday, according to an unofficial report. In contrast, relatively cool and dry conditions covered the central and north-central states behind the slow-moving cold fronts.

Around the middle of the week, the first front dissipated as the second front extended from the lower Great Lakes into the lower Mississippi Valley and southern Plains. South of the front, torrential rains pounded portions of the Southeast and lower Mississippi Valley. During the latter part of the week, the northern portion of the front edged eastward, spreading soaking rain across the Northeast and mid-Atlantic, while the southern portion became stationary, reaching from the upper Rio Grande Valley to the Carolinas coast. Showers and severe thunderstorms, with local heavy rains, continued to be scattered along and south of the stationary front. Light to moderate amounts of rain also spread across the northern and central Plains, upper and middle Mississippi Valley, and Great Lakes. At week's end, storm systems spread rain across the middle Missouri Valley and Southwest while showers and thunderstorms continued to drench the Southeast.

According to the River Forecast Centers, the greatest weekly rainfall totals (from two to nine inches) extended from western Kansas and northwestern Texas southeastward to the lower Mississippi Valley and eastward and northeastward to the southern and middle Atlantic coast. Scattered totals of two or more inches were also recorded across the middle Missouri, upper Mississippi, and Ohio Valleys, the Northeast, the southern Rockies, the desert Southwest, and the Big Island of Hawaii. Light to moderate amounts were reported in Alaska and much of the remainder of the Rockies, Southwest, Great Plains, and eastern half of the nation. Little or no precipitation fell on the Far West, the extreme southern Plains, the Florida peninsula, and the remainder of Hawaii.

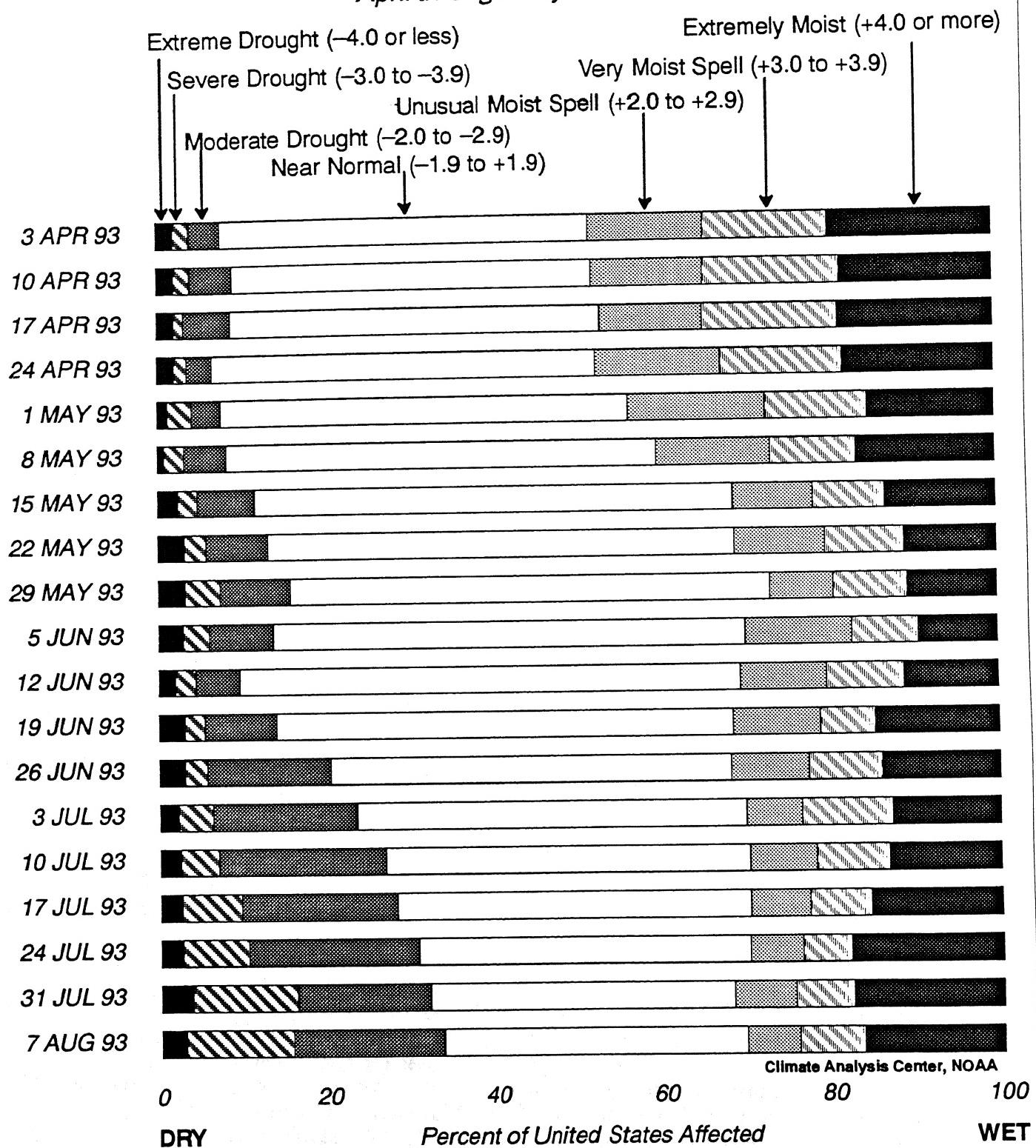
Warmer than normal conditions in the contiguous United States prevailed over the Far West, the Southwest, the Deep South from the Rio Grande Valley to the southern Atlantic coast, and along the immediate northern and middle Atlantic coast. Weekly departures of +4°F to +7°F were observed along the Pacific seaboard, the desert Southwest, and along the Florida peninsula. Above normal temperatures covered most of Alaska, with weekly departures reaching +9°F in the panhandle. Temperatures averaged near to slightly above normal in Hawaii.

Unseasonably cool weather dominated much of the remainder of the nation, with weekly departures of -3°F to -12°F extending from the northern and central Rockies and northern portions of the southern Plains eastward to the central and northern Appalachians. In Alaska, cooler than normal conditions were limited to northwestern portions of the state.

## **NORTH AMERICAN CLIMATE HIGHLIGHTS FEATURE**

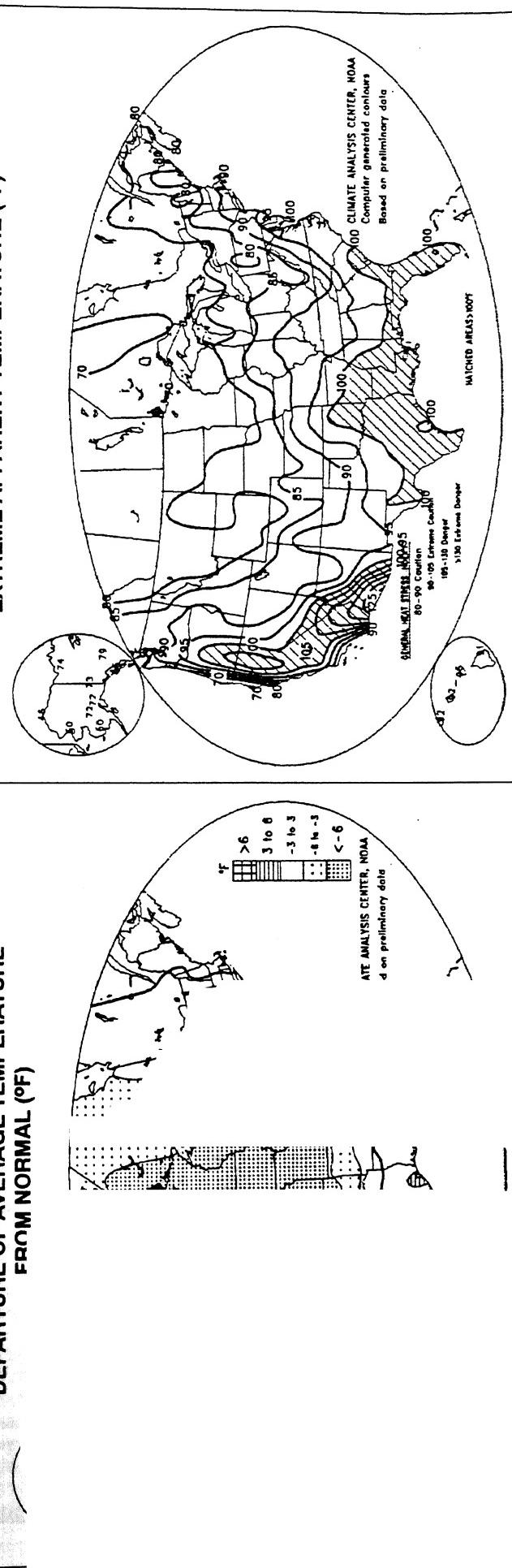
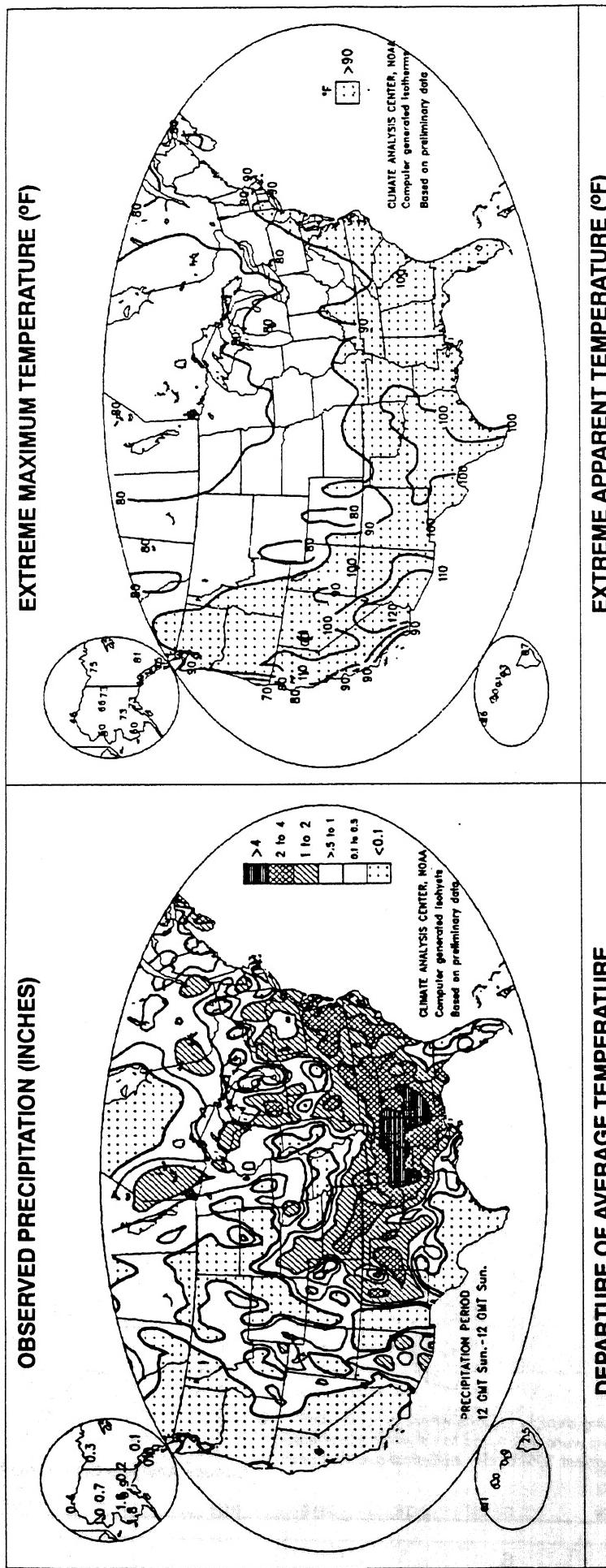
## **PERCENT OF UNITED STATES Affected BY A WET SPELL OR DROUGHT, BASED ON THE PALMER INDEX**

*April through July 1993*



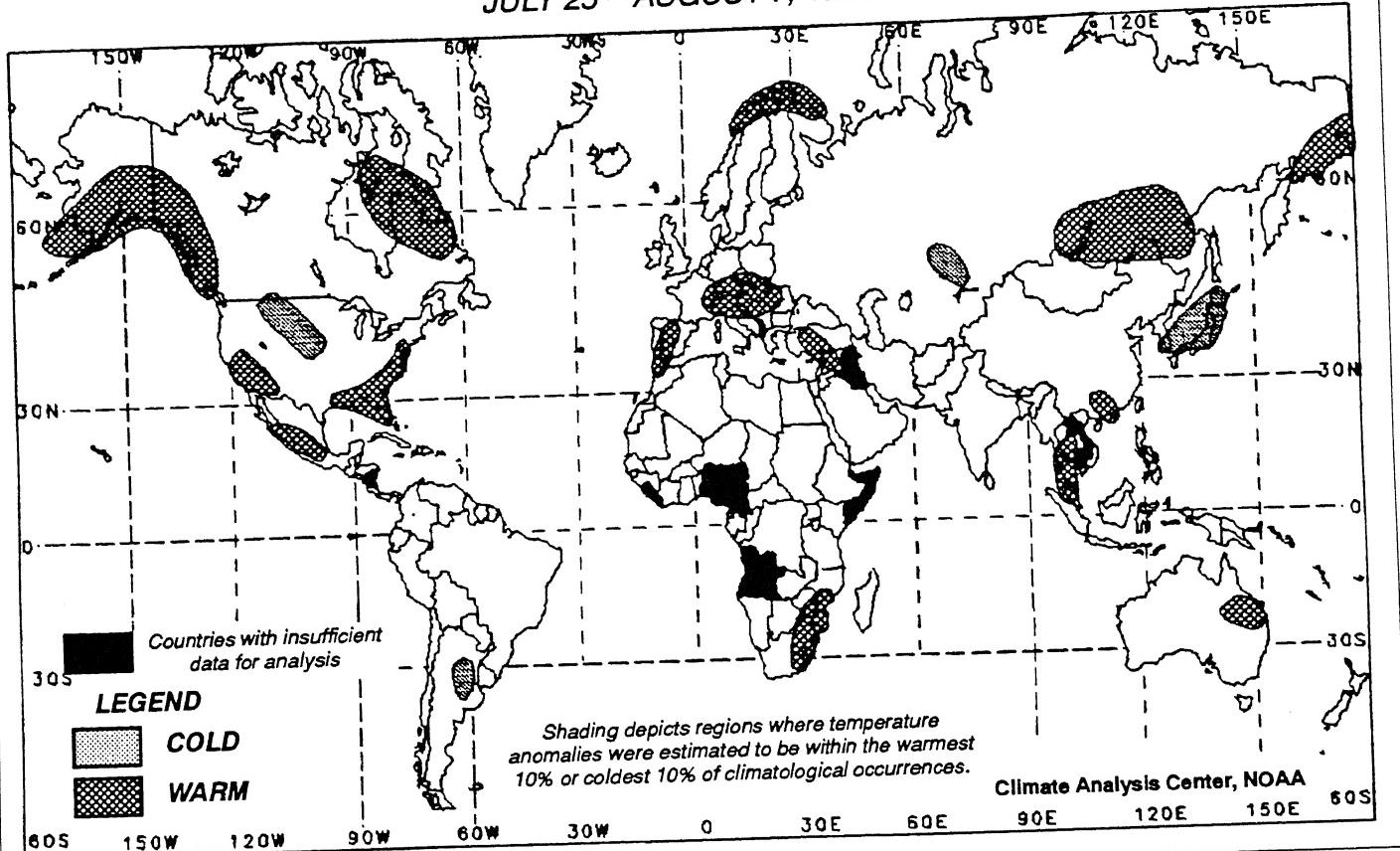
**Percent of Area Affected by Wet Spells and Drought**, as computed by the Climate Analysis Center. Based on a preliminary Palmer Drought Severity Index at -4, -3, -2, +2, +3, and +4, computed by climate divisions. Dry conditions are on the left and wet conditions are on the right.

**UNITED STATES WEEKLY CLIMATE CONDITIONS** (August 1 - 7, 1993)



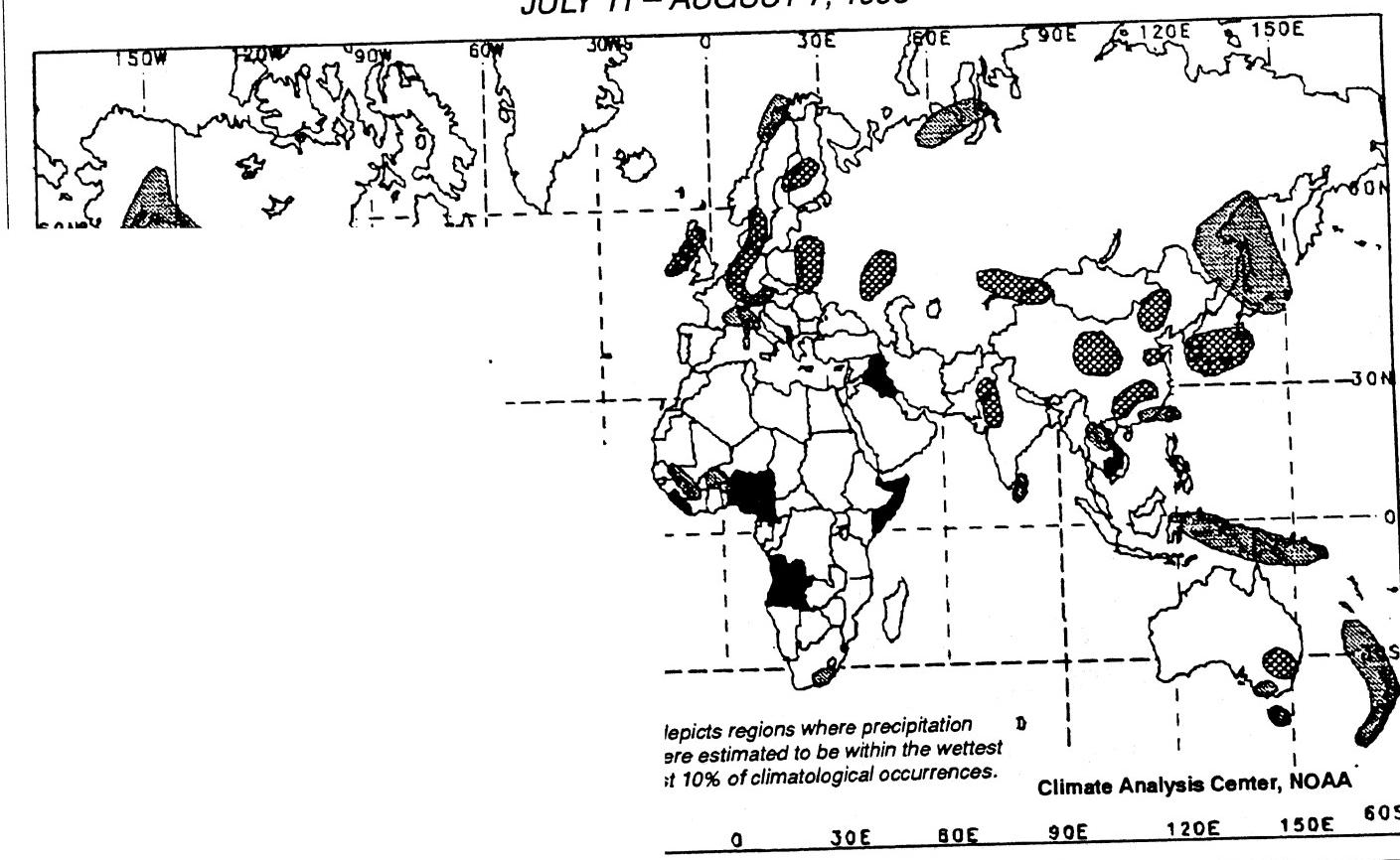
## TWO-WEEK GLOBAL TEMPERATURE ANOMALIES

JULY 25 - AUGUST 7, 1993



## FOUR-WEEK GLOBAL PRECIPITATION ANOMALIES

JULY 11 - AUGUST 7, 1993



# UNITED STATES MONTHLY CLIMATE SUMMARY

## JULY 1993

flooding along much of the Mississippi River and drought in the Southeast highlighted July 1993. Moisture surpluses date back to late July 1992—over a portion of the northern Plains and upper Mississippi—the beginning of the growing season (April 1). Heavy rains exacerbated the long-term moisture surpluses severe to record-breaking river flooding in the central and middle Mississippi Valley, much of the Mississippi, and their tributaries. Totals for the four-month period were measured in feet across much of the region disrupted potable running water in at least three (Des Moines, IA, Alton, IL, and St. Joseph, MO), affording thousands of people. In sharp contrast, abnormals prevailed across much of the Southeast. Since less than half of normal rainfall was reported through Georgia, and the Carolinas. Near-record to record dry readings exacerbated the dry conditions in much of the readings topping 95°F on 47 of the 61 days in June (Augusta, GA). This pattern of rainfall-induced flooding west and drought across the Southeast was caused by circulation pattern which brought moisture from the Midwest while preventing the eastward progression of systems which would bring rain and cooler conditions to the southeast.

Beginning of July featured showers and strong thunderstorms in the central Plains eastward. Up to five inches fell in western South Dakota and southern Minnesota. Torrential rains drenched portions of northeastern Kansas, north-central Illinois, central Indiana, and western Ohio. Thunderstorms and locally heavy rains were scattered across the northern High Plains, lower Mississippi Valley, Southwestern Appalachians. Further northwest, a powerful storm system dropped more than a foot of snow on the higher elevations of the Rockies. During the first full week of the month, intense rains continued to deluge the east-central Plains and the Mississippi Valley with as much as a foot of rain. The eastern part of the country experienced a heat wave which soared near or past the century mark throughout Megalopolis.

While heat and prolonged drought conditions persisted in the West during the middle of the month while recurrent thunderstorms continued to deluge the northern and central upper and middle Mississippi Valley. The heavy rains caused the severe flooding, which forced the closing of River bridges from the IA/IL/WI triple point downriver and halted barge traffic on the Mississippi and Missouri Rivers. Torrential rains also swelled the Red River to a level above flood stage, and caused flash flooding in North Dakota. Fortunately, the Red River flows northward to Lake of the Woods, Canada, and is not part of the Mississippi/Missouri River system.

During the third week of July, the deluge continued across the central Plains and middle Mississippi Valley, and streams beyond the record high levels of previous years. The Army Corps of Engineers reported that nearly 100 Federal levees in the flooded region were breached by swollen rivers. As much as 10.2 million acres of farmland were inundated while total damages climbed above \$12 billion according to press reports. In sharp contrast, hot and dry conditions plagued the drought-plagued southeastern states, where heavy rains delivered up to five and a half inches to isolated parts of Virginia, the Carolinas, and

the northeast closed with more heavy rains across the east-

central Plains and middle Mississippi Valley, with the Mississippi River level at a record-breaking 49.4 feet at St. Louis, MO, while the Missouri reached 38.4 feet at St. Charles, MO. Raging waters rose more quickly and higher than expected, closing highways, inundating farmland, and forcing evacuations. Farther south, hot and dry conditions engendered wildfires in eastern Texas as Dallas-Fort Worth endured its first rain-free month in 90 years.

According to the River Forecast Centers, heavy precipitation (over eight inches) covered the central Plains, eastern North Dakota, and parts of the central and eastern Gulf Coast, with four or more inches widespread across the central states and Great Lakes, along most of the Gulf Coast, and in parts of the Carolinas. At least twice the normal rainfall was observed across the Northwest, northern Plains, and southern Rockies (page 8). Several locations in the central Great Plains, northern High Plains, and northern Mississippi Valley received record July rainfall (page 12). Above normal precipitation also prevailed on most of the Hawaiian Islands. Based on preliminary calculations from the National Climatic Data Center (NCDC), four of the nine regions reported above median precipitation, with the West North Central and the East North Central reporting the wettest and second wettest July, respectively, since records began in 1895 (page 9). Of the 48 contiguous states, only 18 observed above median precipitation; however, ten of them (ID, IL, IA, KS, MN, MO, MT, NE, ND, and SD) experienced one of the three wettest Julys in 99 years of record.

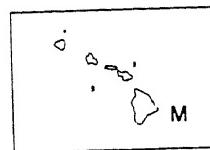
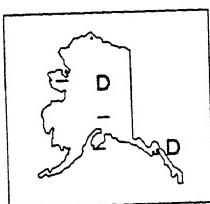
Below normal precipitation prevailed across most of the East, the Southeast, the southern Great Plains, and the desert Southwest (page 8). In addition, subnormal monthly totals were also observed across Alaska, except on a few of the Aleutian Islands. Five of the nine NCDC regions reported submedian totals, with the Southwest and the Southeast experiencing the driest and second driest such month, respectively, in 99 years of record (page 9). Of the 48 contiguous states, 30 observed submedian precipitation totals, and 18 experienced one of the ten driest Julys since 1895. In addition, several locations received record low July precipitation, especially in the southern Great Plains (page 12). Although large sections of the northwestern and north-central portions of the country endured record-breaking wetness, the national precipitation index for July 1993 ranked 8<sup>th</sup> driest of the 99-year historical distribution.

Unusually cool weather dominated the western and north-central states, with monthly mean temperatures averaging 6°F to 11°F below normal in the northwestern quadrant of the nation (page 10). According to NCDC, five of the nine regions reported submedian temperatures, with the West North Central experiencing the coolest July in 99 years of record (page 11). In addition, the West North Central and the West reported the second coolest July since records began in 1895. The monthly mean temperature was below the median values in 18 of the 48 contiguous states, and in five of them (ID, MT, OR, UT, and WA) recorded the coolest July on record. Numerous locations across the northwestern quarter of the country reported record low July average and/or extreme temperatures (inside back cover).

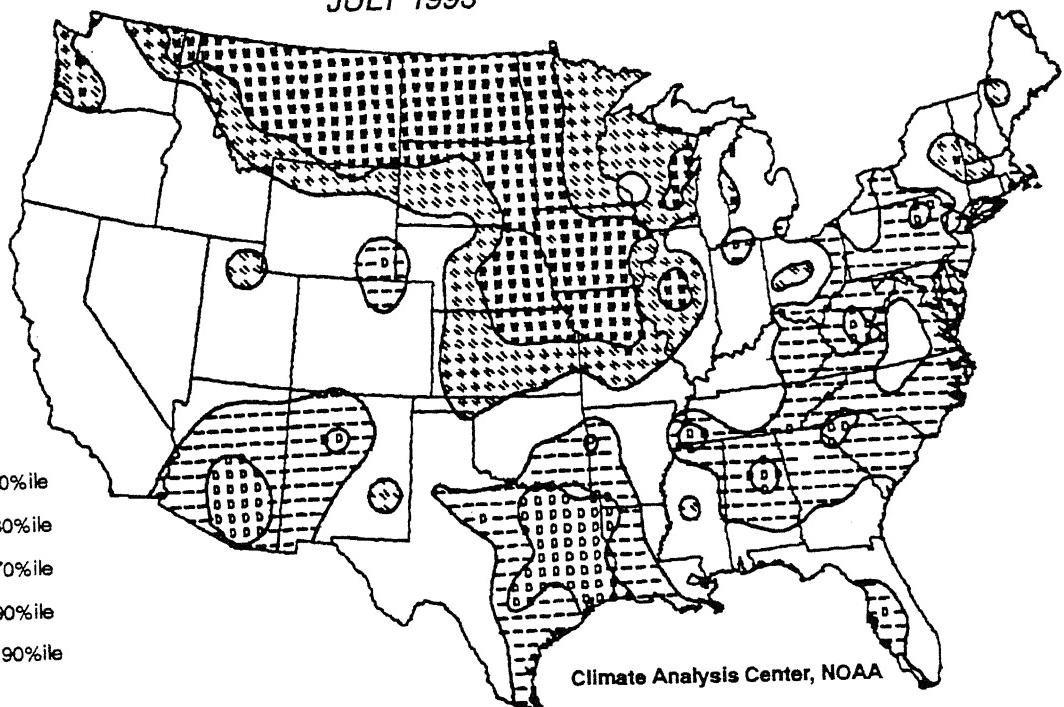
In contrast, abnormally high temperatures prevailed across the East and Southeast, with monthly temperature departures ranging from +4°F to +7°F in much of the region (page 10). In addition, above normal temperatures prevailed across Alaska for the fifth consecutive month, with departures of +3°F to +6°F common throughout the state. Four of the nine regions reported above median temperatures, with the Southeast and the South experiencing the warmest and 8<sup>th</sup> warmest July, respectively, since 1895 (page 11). Of the 48 contiguous states, 30 observed above median monthly mean temperatures, with five states (AL, GA, NC, SC, and VA) experiencing the warmest July in 99 years of record.

## PRECIPITATION PERCENTILES

JULY 1993



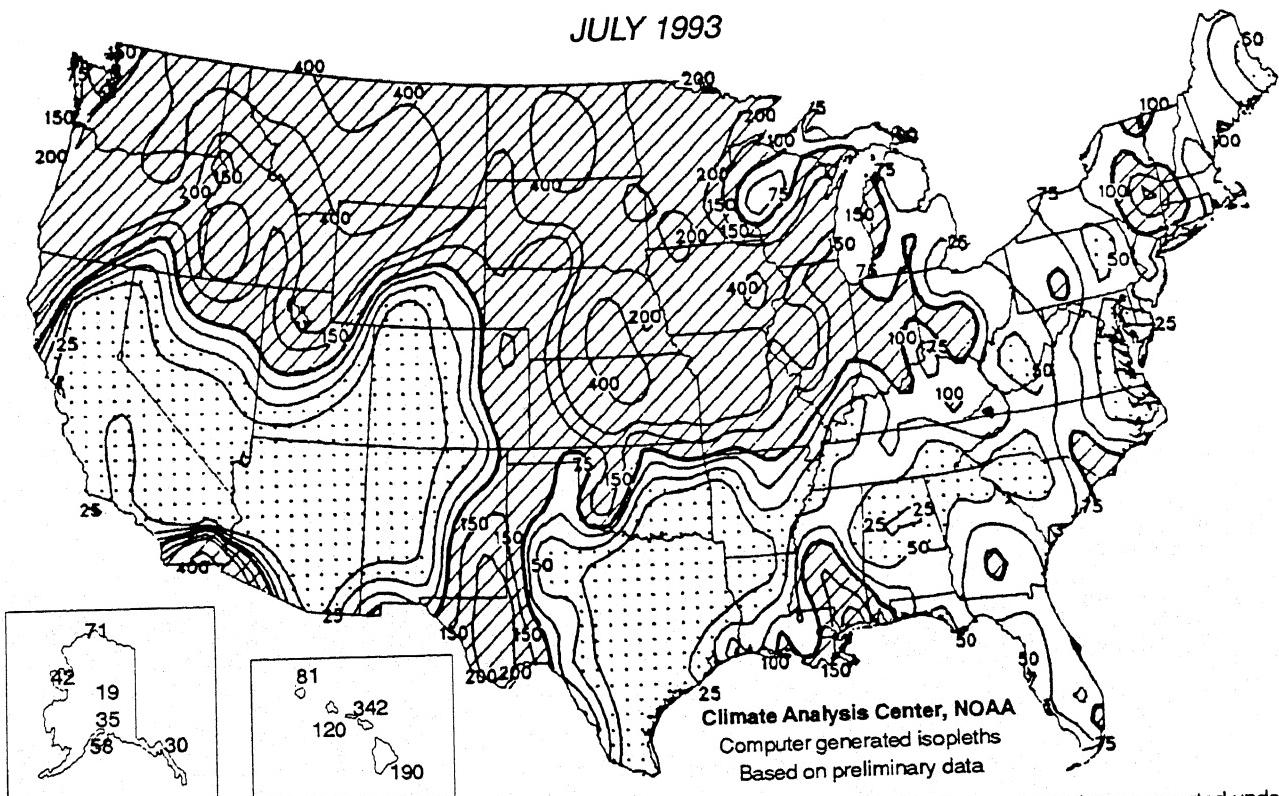
- D less than 10%ile
- 10%ile to 30%ile
- . 30%ile to 70%ile
- + 70%ile to 90%ile
- W more than 90%ile



**JULY 1993 PRECIPITATION PERCENTILES**, as computed by the Climate Analysis Center. A wet month (>70%ile) was observed across the northern Rockies, the northern Plains, and the Midwest. Totals were among the wettest 10% of the historical distribution in the Missouri and upper Mississippi Valleys and the northern Plains and Rockies. Climatologically significant dryness (<30%ile) prevailed along much of the southern and eastern tiers of the country, with totals among the driest 10% of the historical (1961–1990) distribution in southern Arizona, eastern Texas, and scattered parts of the Appalachians.

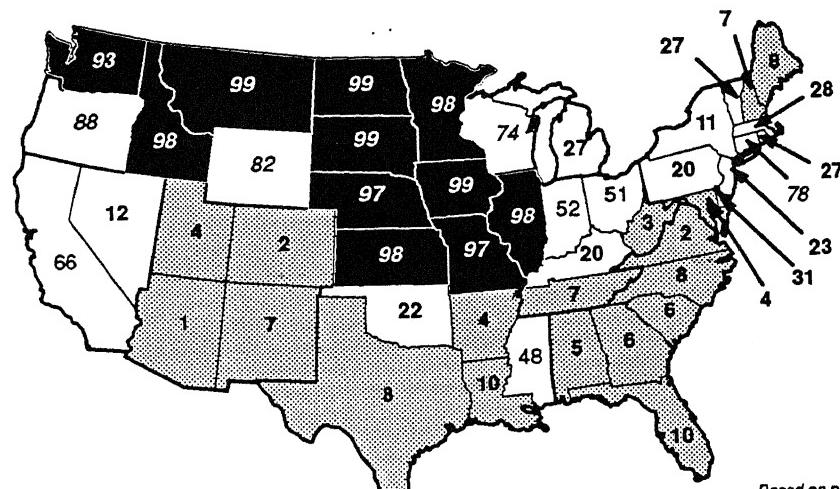
## PERCENT OF NORMAL PRECIPITATION

JULY 1993



**JULY 1993 PERCENT OF NORMAL PRECIPITATION**. Hatched areas received above normal precipitation, and dotted areas reported under half of normal. Abnormally wet weather dominated the Northwest, extreme southern California, the northern and central Great Plains, the western Great Lakes, and the southern High Plains during July 1993 while unusually low totals were measured in much of the desert Southwest, the southern Great Plains, and much of the East.

## HISTORICAL PRECIPITATION RANKINGS BY STATE JULY 1993



### LEGEND

- Among the ten driest
- Among the ten wettest
- 1 - 33: DRY
- 34 - 66: NEAR NORMAL
- 67 - 99: WET

Climate Analysis Center, NOAA

Based on preliminary data generated by the National Climatic Data Center

This chart depicts the ranking of the specific parameter, as measured during the period indicated, with respect to all other such periods on record since 1895.

## HISTORICAL PRECIPITATION RANKINGS BY REGION AND NATION JULY 1993



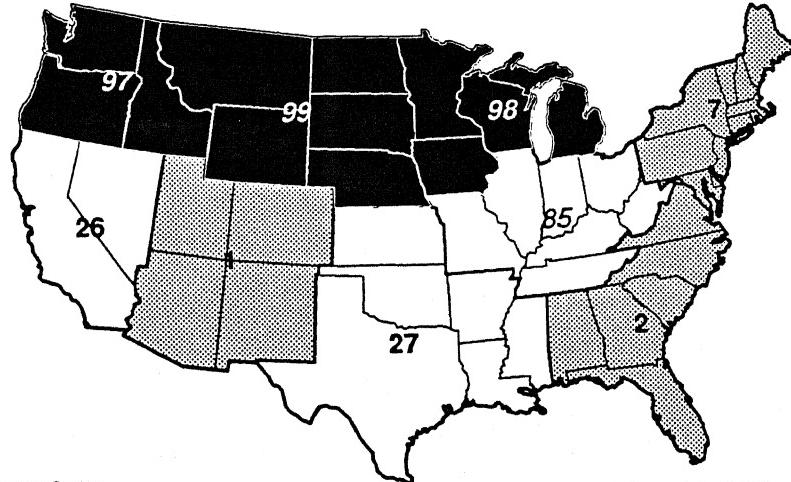
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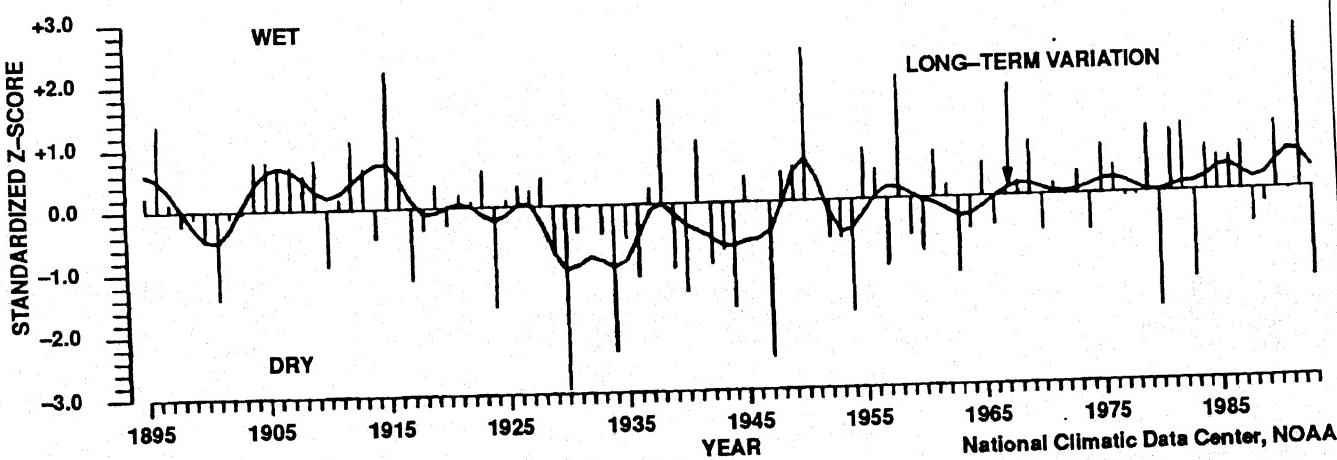
Climate Analysis Center, NOAA

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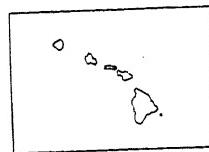
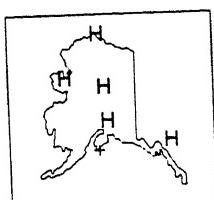
## U. S. NATIONAL NORMALIZED PRECIPITATION INDEX JULY 1895 – 1993



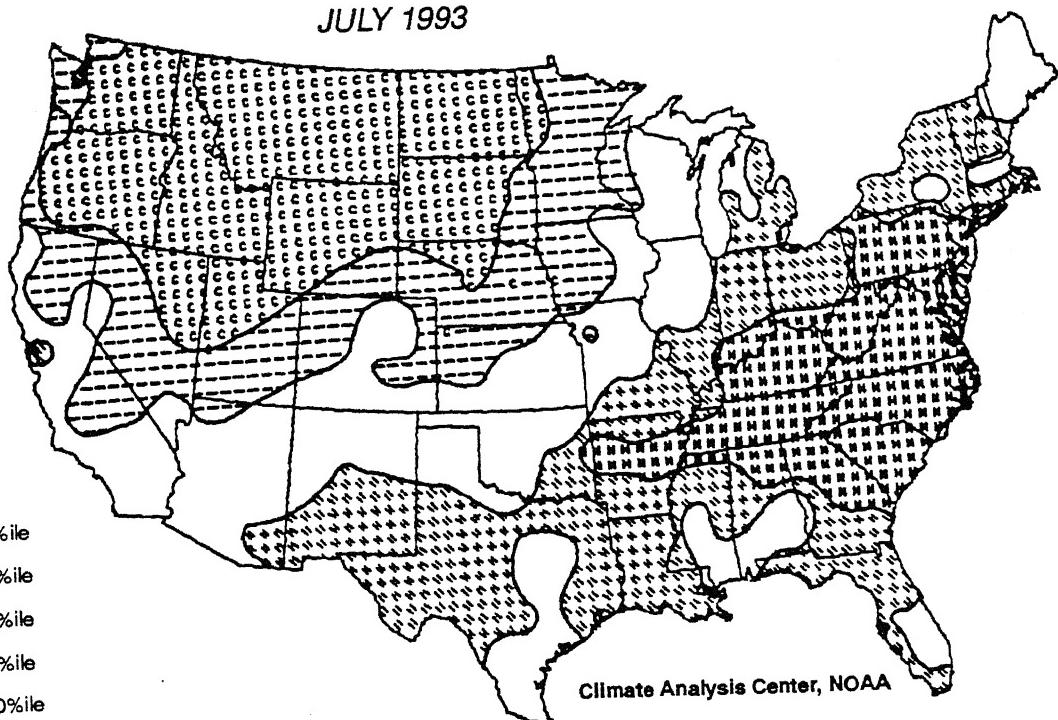
NATIONAL MEAN JULY 1993 PRECIPITATION INDEX, as computed by the National Climatic Data Center. July 1993 ranked as the 8<sup>th</sup> driest on record despite inundating rains across the northern and central Plains. This index takes local normals into account so that regions with large precipitation amounts do not dominate the index value.

## TEMPERATURE PERCENTILES

JULY 1993



- C less than 10%ile
- 10%ile to 30%ile
- . 30%ile to 70%ile
- + 70%ile to 90%ile
- H more than 90%ile

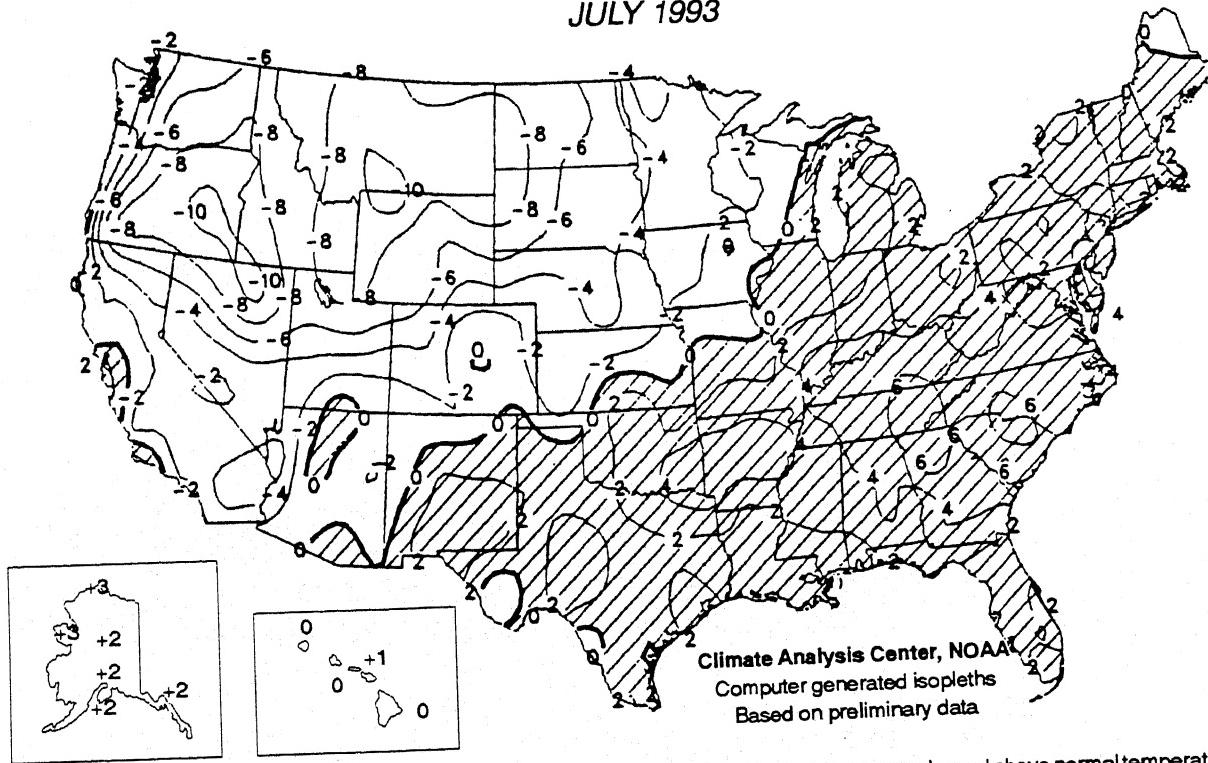


Climate Analysis Center, NOAA

**JULY 1993 TEMPERATURE PERCENTILES**, as computed by the Climate Analysis Center. Unusually cool weather (<30%ile) dominated the northwestern and north-central states, with monthly mean temperatures among the coldest 10% of the 1961–1990 distribution across much of the region. In contrast, abnormally warm conditions (>70%ile) prevailed through most of the eastern and southern portions of the country, with monthly means among the warmest 10% of the 1961–1990 distribution across much of the East and the lower Ohio and Tennessee Valleys.

## DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)

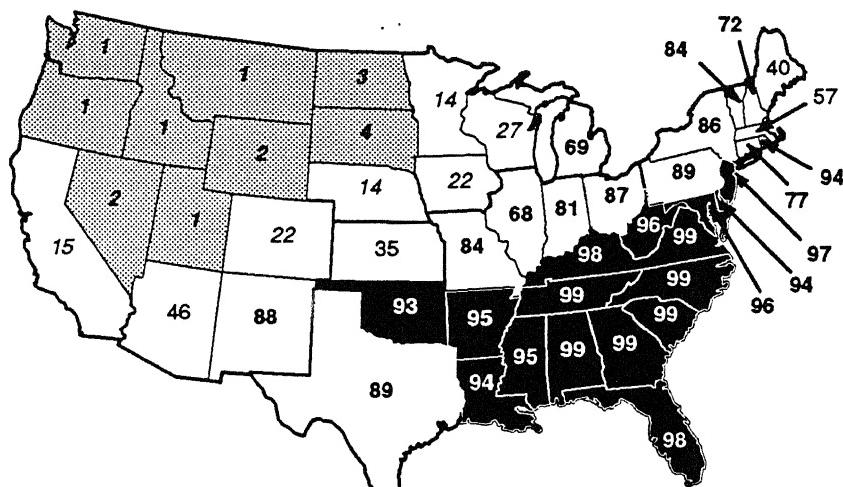
JULY 1993



Climate Analysis Center, NOAA  
Computer generated isopleths  
Based on preliminary data

**JULY 1993 DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)**. Shaded areas experienced above normal temperatures. Unseasonably cool weather covered much of the Pacific Northwest and the northern Rockies, with temperatures averaging as much as 11°F below normal in the Intermountain West. In contrast, unusually high temperatures were observed across the East and the South, with monthly departures approaching +7°F in parts of Tennessee and Georgia.

## HISTORICAL TEMPERATURE RANKINGS BY STATE JULY 1993



### LEGEND

- ◻ Among the ten coldest
- Among the ten warmest
- 1 - 33: COLD
- 34 - 66: NEAR NORMAL
- 67 - 99: WARM

Climate Analysis Center, NOAA

*This chart depicts the ranking of the specific parameter, as measured during the period indicated, with respect to all other such periods on record since 1895.*

## HISTORICAL TEMPERATURE RANKINGS BY REGION AND NATION JULY 1993



### LEGEND

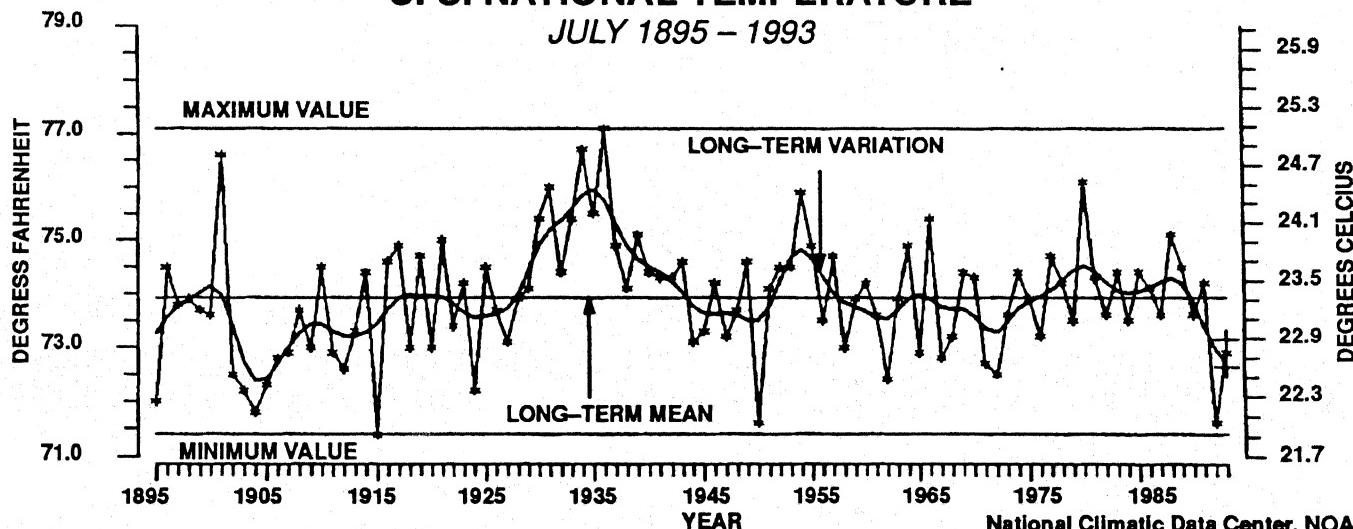
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Climate Analysis Center, NOAA

*Based on preliminary data generated by the National Climatic Data Center*

*This chart depicts the ranking of the specific parameter, as measured during the period indicated, with respect to all other such periods on record since 1895.*

## U. S. NATIONAL TEMPERATURE JULY 1895 - 1993



National Climatic Data Center, NOAA

**NATIONALLY AVERAGED JULY 1993 TEMPERATURES**, as computed by the National Climatic Data Center. Despite very high temperatures across the South and East, the unusually cold weather throughout the West dominated the nationally averaged temperature, yielding the 16<sup>th</sup> coolest July on record.

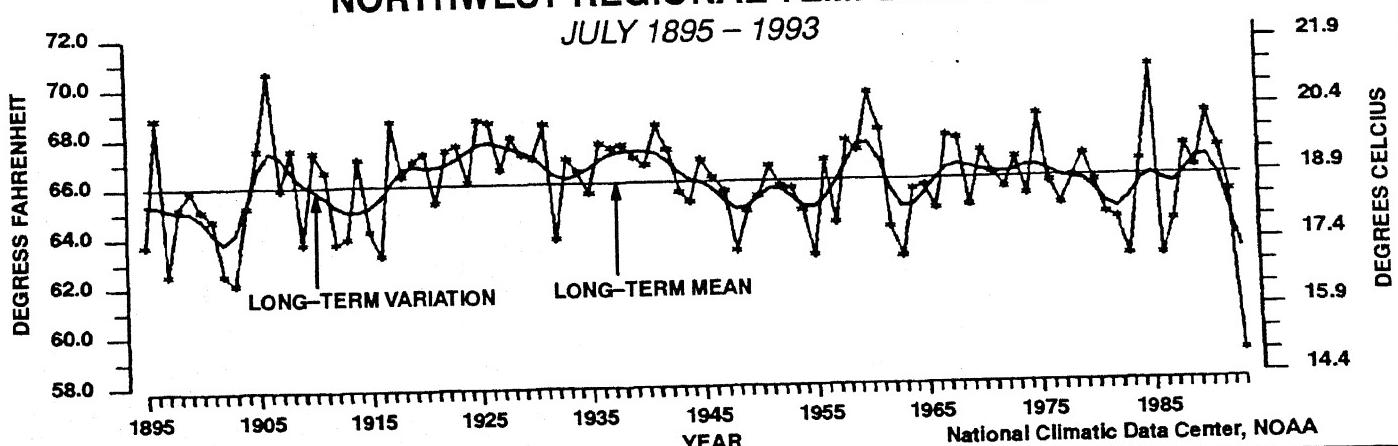
TABLE 1. RECORD JULY PRECIPITATION

STATION	TOTAL (IN)	NORMAL (IN)	PCT. OF NORMAL	RECORD TYPE	RECORDS BEGAN
CONCORDIA, KS	16.75	3.65	458.9	HIGHEST	1886
BISMARCK, ND	13.75	2.14	642.5	HIGHEST	1875
GRAND ISLAND, NE	10.68	2.83	377.4	HIGHEST	1939
PEORIA, IL	10.15	4.20	241.7	HIGHEST	1947
GREEN BAY, WI	6.83	3.10	220.3	HIGHEST	1881
HURON, SD	6.69	2.67	250.6	HIGHEST	1947
WILLISTON, ND	6.28	2.10	299.0	HIGHEST	1950
KALISPELL, MT	6.02	1.12	537.5	HIGHEST	1955
GLASGOW, MT	5.93	1.72	344.8	HIGHEST	1935
BILLINGS, MT	5.08	0.94	540.4	HIGHEST	1880
HELENA, MT	4.70	1.10	427.3	HIGHEST	1938
GREAT FALLS, MT	4.49	1.24	362.1	HIGHEST	1935
PENDLETON, OR	1.45	0.35	414.3	HIGHEST	
CHARLESTON, WV	1.98	4.99	39.7	LOWEST	1948
BECKLEY, WV	1.65	4.70	35.1	LOWEST	1953
MCGRATH, AK	0.39	2.05	19.0	LOWEST	1941
NORFOLK, VA	0.36	5.06	7.1	LOWEST	1947
FAIRBANKS, AK	0.35	1.87	18.7	LOWEST	1930
TUCSON, AZ	0.26	2.37	11.0	LOWEST	1940
DALLAS, TX	0.00	2.21	0.0	LOWEST	1940
SAN ANTONIO, TX	0.00	2.16	0.0	LOWEST	1942
AUSTIN, TX	0.00	2.04	0.0	LOWEST	1944
WACO, TX	0.00	1.99	0.0	LOWEST	1896
PHOENIX, AZ	0.00	0.83	0.0	LOWEST	1937
LAS VEGAS, NV	0.00	0.35	0.0	LOWEST	
YUMA, AZ	0.00	0.26	0.0	LOWEST	1870

NOTE: Trace precipitation is considered ZERO precipitation. Stations with no precipitation are only included if normal precipitation is 0.25 inches or more.  
— Percent of normal not calculable.

### NORTHWEST REGIONAL TEMPERATURE

JULY 1895 – 1993



REGIONALLY AVERAGED JULY 1993 TEMPERATURES, as computed by the National Climatic Data Center. July 1993 was characterized by sharp temperature contrasts. The Northwest Region (above) experienced the coolest July in 99 years while the Southeast Region (below) had the hottest such month since records began in 1895.

### SOUTHEAST REGIONAL TEMPERATURE

JULY 1895 – 1993

